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Why Canada Should Develop her Vast Iron Ore Resources

AND

BUILD UP STEEL INDUSTRIES IN CENTRAL CANADA, AND EVENTUALLY SECURE THE CONSTRUCTION OF SHIPBUILDING YARDS ON THE ATLANTIC AND PACIFIC COASTS. THERE ARE PROBABLY HUNDREDS OF MILLIONS OF TONS OF IRON ORE IN CANADA.

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and build up Steel Industries in Central Canada, and eventually secure the construction of Shipbuilding Yards on the Atlantic and Pacific coasts. There are probably hundreds of millions of tons of Iron Ore in Canada.

Canada's Iron Ore Resources.

The Atikokan Iron Company has opened up its mines about 140 miles west of Port Arthur, and has proven up about 10,000,000 tons of ore, carrying about 60 per cent. iron content. A blast furnace and roasting plant has been constructed at Port Arthur, where excellent pig iron has been made from the ore.

There are about 15,000 miles of railway west of Port Arthur, and within the next ten years this mileage will probably be doubled. In 1901, there were only about 646,000 people in Western Canada, but now there are over 2,000,000; and in ten years from now there will probably be more than 6,000,000, which is greater than the total population of all Canada in 1901.

Port Arthur is a very suitable point to assemble the iron ore, coal, and flux for the production of pig iron and steel products required to manufacture steel rails, locomotives, cars, farm machinery, structural steel, and many other articles required by the millions in Western Canada.

British capitalists are apparently prepared to become interested in the Atikokan Iron Mining Company, and to erect large blast furnaces and an extensive steel plant at Port Arthur to manufacture the Canadian ore from the Atikokan Iron Mines into iron and steel for the requirements of Western Canada. With the advent of this plant will come many independent plants to manufacture bye-products and various articles for the rapidly expanding markets of Western Canada.

Large deposits of magnetite have been discovered near the

Kakabeka Falls. Mr. Rinaldo McConnell of Ottawa has proven up extensive deposits of hematite ore about 25 miles east of Port Arthur and adjacent to two lines of railway, and to Thunder Bay. When the Western Canada Shipbuilding Company at the City of Port Arthur, backed by experienced American capitalists, can construct large steamships in competition with the British shipbuilders without any protection, it would appear reasonable that vast, iron and steel industries can be established at Port Arthur to supply the needs of Western Canada, if reasonable encouragement is extended to the iron mines and steel plants of Canada.

The Lake Superior Corporation of Sault Ste. Marie have developed the Helen Iron Mine at Michipicoten, from which they have shipped over 1,500,000 tons of excellent hematite iron ore. On the same range, about 10 miles north of the Helen, the Josephine, owned by Alois Goetz of Sault Ste. Marie, Michigan, and his associates, has been proven up by diamond drilling over 500,000 tons of equally good hematite ore, and both of these properties have vast deposits of siderite ore, similar to that of the Magpie Iron Mine about 20 miles north of the Helen Iron Mine. The Lake Superior Corporation have proven up over 12,000,000 tons of ore in the Magpie Iron Mine. They have equipped this mine, developed a large water power near by, and have erected a roasting plant at a cost of about $1,000,000, and are now equipped to mine and roast about 1,000 tons per day. The roasting or calcining plant has been in continuous operation for over a month, and the expectations of the engineers have been more than realized in regard to the low cost of production and the quality of ore produced. The Moose Mountain have developed their mines, proving the existence of about 100,000,000 tons of magnetic ore; installed a mining plant, and erected a Grondel Concentrating plant capable of producing some 250 tons per day of concentrated ore assaying 63 per cent. iron content. There are a number of titaniferous ore bodies in Eastern Ontario. Mr. Evans of Belleville has been successful in producing high-grade steel direct from the ore by the electric process, and proposes to put up a furnace to treat on a commercial scale the titaniferous ore from the Orton Mine. There are the Belmont, Wilbur, Farnum, and many other magnetite properties in Eastern Ontario. Mr. Rinaldo McConnell and his associates have located a very large deposit of hematite on the Mattagami River, about 60 miles north of Hearst, on the Transcontinental Railway. In the vicinity of

Temagami, Burwash, Shining Tree Lake, Parry Sound, Woman River, Cartier, and at various points in the vicinity of Lake Superior, promising Iron Ranges have been discovered. The same geological formations are found throughout Northern Ontario as in Minnesota, Wisconsin, and Michigan. It is believed that in these iron ranges in Ontario, where the iron-bearing rocks have been broken down and eroded so as to form a lake basin, deposits of hematite may be found by diamond drilling, and this has been done successfully at the Helen, Josephine, and Steep Rock Lake Mines. It will be extremely strange if the banded jasper and hematites found for so many hundred miles throughout Northern Ontario are not in places associated with iron ore as they are on the south side of Lake Superior. When these suface indications are followed up on the Canadian side as they are followed up on the American side, similar ore bodies will undoubtedly be found. The developing and mining of the siderite and magnetite ore ranges may probably lead to the discovery of extensive deposits of hematite ores, similar to the Mesabie range. The vast surface deposits of siderite at the Josephine and Helen Mines indicate the existence of deposits equal to the Magpie Iron Mine. Near Bathurst, in the Province of New Brunswick, over 20,000,000 tons of magnetic ore, somewhat similar to the Moose Mountain ore have been proven and the mine equipped and a concentrating plant erected, capable of handling over 1,000 tons of ore per day. In Nova Scotia the iron mines have about 4,000,000 tons of iron ore proven, and one company has a plant capable of handling over 200,000 tons annually. In British Columbia, experts estimate that the iron ore deposits already discovered contain over 35,000,000 tons of ore and that her coal deposits contain some 40,000,000,000 tons of coal, and two capitalists have for some time been seriously considering the erection of blast furnaces in this province.

THE COMMISSION ON CONSERVATION OF CANADIAN RESOURCES URGE THE VIGOROUS DEVELOPMENT OF OUR IRON INDUSTRY

The following is quoted from the first annual report of the Commission on Conservation of Canadian Resources:—

"Only a few years ago the ironmasters of this continent would

Pig Iron Plant of the Atikokan Iron Co., Port Arthur

hardly look at an iron ore if it contained less than 62 per cent. of metallic content; now an ore of 50 per cent. is gladly received. **We are, and will continue to be, industrially handicapped until our iron industry is developed sufficiently to meet the demands of our country, and render us independent of outside sources for this all-important metal.**

"What we need is not conservation of our iron ore resources, but vigorous development of our iron industry."

Canada has apparently hundreds of millions of tons of iron ore scattered from Atlantic to Pacific. The provinces on the Atlantic and Pacific Oceans have abundant sources of fuel, flux, and ore. Canada possesses every natural facility for establishing vast steel plants and shipbuilding industries on any desired scale. Already Canada has some 18 blast furnaces and several extensive steel plants in Nova Scotia and Ontario, costing some $100,000,000, and producing about 1,000,000 tons of finished product, worth about $35,000,000.

WHAT OTHER COUNTRIES HAVE DONE, CANADA CAN DO

The iron and steel products of Germany exceed 15,000,000 tons of pig iron, and Great Britain 9,000,000 tons; while the product of the United States exceeded in 1912, 29,000,000 tons. In 1909, the blast furnaces and steel plants of the United States produced pig iron and steel products worth over $1,000,000,000, giving employment to over 320,000 men, and paying, in wages, the sum of $220,000,000. During the last three years, the output has increased 25 per cent. In 1912, the American Iron Mines in the Lake Superior district shipped over 48,000,000 tons of ore, worth $150,000,000, and paying over $50,000,000 to the transportation companies in freight rates alone. In 1891, these mines only produced 7,621,465 and in 1901 only 20,593,537 tons, compared with over 48,000,000 in 1912. All the Canadian and American grain that passes through both canals at Sault Ste. Marie does not exceed 6 per cent. of the tonnage, while iron ore exceeds 60 per cent. of the tonnage.

If the production of the Lake Superior Iron Mines continues to increase 10 per cent. each year, as it has done during the last thirty years, **the present known ore bodies carrying fifty per cent. iron content will be exhausted in that region in less than twenty years.**

About three-quarters of the Minnesota iron ore reserves are under the control of the United States Steel Company. The following quotations are taken from addresses delivered by N. V. Hansell of the City of New York at the meeting of the American Institute of Mine Engineers, held in Cleveland, October, 1912:—

"The preparation of low-grade ores by concentration has, in the United States, only been recognized as a metallurgical process of vast economical importance for its iron industry. The importance of the process lies not only in the fact that it makes possible the use of ores heretofore discarded but also in its production of a raw material for the blast furnace that is more uniform in its physical character, and chemically purer, with a higher iron content than the general run of natural ores. When mixed in the burden of the furnace, it lowers the amount of coke and fluxing-stone required per ton of pig iron produced. The pig iron is of higher quality, and more uniform in character. At the present time, the Lake Superior district furnishes about 80 per cent. of all the iron ore yearly produced in the United States. These ores are showing a steady decrease from year to year in grade. For the past ten or fifteen years this falling off in grade has been about 0.5 per cent. a year. It will be found that a drop in ore grade from 50 to 45 per cent. brings with it an increase in cost of raw material alone of $1.25 per ton of pig iron. Mr. Ekel draws the conclusion that it seems safe to assume that the cost of pig iron will increase at the rate of between 25 and 50 cents per ton for each decrease of one per cent. in the average iron-content of the ores to be used. The concentration of low-grade magnetites on magnetic separators is used at present to a relatively large extent for converting into a marketable blast furnace ore the magnetic iron ores of the east, which seldom occur sufficiently high in iron to be smelted in their crude state. A number of plants are in operation in the States of New York, New Jersey, Pennsylvania, and North Carolina, and in Eastern Canada. The total capacity of all the magnetic separating plants in America exceeds considerably 2,000,000 tons of concentrated ore yearly. In certain parts of Europe, particularly in Sweden and Norway, magnetic ore separation is used extensively."

During the last five years, the output of the iron industry in Germany has increased over 25 per cent., while that of Great Britain has actually decreased. Canada now ranks eighth among the nations of the world in her production of iron and steel.

Canada should make a supreme effort to increase her production to 6,000,000 tons of pig iron per annum which, combined with the production of the United Kingdom, would almost equal the production of Germany, and make the Dominion fourth among the nations of the world in the production of iron and steel, which is a very important factor in the naval and military strength of a nation.

In the course of twenty years, if Canada adopts sane policies in the development of her vast mineral resources, as she has done in developing her agricultural resources, she should have a population of nearly 30,000,000 people, and should now legislate to lay the foundation, not only for extensive steel plants, but also of shipyards, which eventually should compare favorably with anything in the world.

SOME OF THE DIFFICULTIES IN CONNECTION WITH THE IRON MINES

1. Before most of the Canadian iron ore in New Brunswick, Nova Scotia, Quebec, Ontario, and British Columbia can be used, it is necessary to erect expensive roasting or concentrating plants to treat the raw ore before shipping same to the blast furnaces at a cost of from 35 cents to $1.25 per ton, while the American ore from the Lake Superior mines can be mined and shipped cheaper than in any other country in the world.

2. In order to mine and treat the ore, it is necessary to expend large sums of money in building branch lines of railway, developing electric powers, erecting ore docks, and unloading equipment at various different ports, necessitating high charges on the small tonnage handled each year, while most of the 48,000,000 tons of American ore is handled over double-track railways, equipped with the most modern equipment for loading and unloading, and transported in steamboats of about 10,000 tons capacity. In some cases, the Canadian railways will charge over 2 cents per ton per mile for transportation and unloading into the steamboats, while the American railways are compelled by the Inter-State Commerce Commission to charge about one-half a cent per ton mile for the same service.

3. The Canadian ore exported to the United States furnaces

must pay a duty of 15 cents per ton, while the American and other ores come into Canada free of duty.

4. Owing to some of the blast furnaces being located some 600 miles from the iron mines, the cost of transportation is high.

5. The steel plants in Ontario are conveniently located to secure American ore in such quality and quantity as they may require without any capital expenditure whatever. They are not inclined to invest their limited capital in the development of iron mines or encourage others to do so if there is no bounty allowed on Canadian ore, or a duty imposed on imported ore.

THE IRON MINES MERIT ASSISTANCE OR PROTECTION

1. To secure the development and continuous operation of the bituminous coal mines of the Maritime Provinces, British Columbia, and Alberta, Central Canada has for years paid a duty of about 50 cents per ton on bituminous coal, amounting to nearly $8,000,000 yearly, being equivalent to an ad valorem duty of 25 per cent. The same protection would mean a duty of from 85 cents to $1.00 per ton on iron ore, so that the Dominion should at least grant such protection, or a bounty of at least 50 cents per ton.

2. In 1903 the Dominion granted a bounty of $15.00 per ton on the product of the silver-lead mines of British Columbia for a period of five years, limiting the bounty to $500,000 per annum, and since that year, these mines have produced over $30,100,000 of silver and lead. A bounty of 50 cents per ton on iron ore would probably secure an output of 12,000,000 tons at the end of the next ten years.

THE MINING INDUSTRY IS OF EQUAL IMPORTANCE TO THAT OF FARMING AND MANUFACTURING

The total value of the wheat and all other grains exported by Canada from 1900 to 1909 inclusive amounted to about $276,000,000, and of manufactured articles, $215,000,000, but the mineral products exceeded $334,000,000. During the same period, Canada imported iron and steel products to the extent of $339,000,000, of which $78,000,000 was admitted free of duty.

IRON MINES NEGLECTED

The agricultural and manufacturing interests have been assisted

Making Steel Ships at the plant of the Western Dry Dock and Shipbuilding Co., Port Arthur

and protected, while the iron mines have been neglected. From 1900 to 1909, $6,000,000 have been expended by the immigration department to secure settlers for Western Canada, and land given to them at $10 per homestead, which, if sold at the prevailing price paid for adjacent railway lands, would have brought about $75,000,000 into the treasury of the Dominion, and during the same period the Department of Agriculture expended over $8,000,000, whereas the Geological and Mining Department only spent on an average about $100,000 each year.

Canadians frequently express the desire to see Central Canada or Northern Ontario grow as rapidly as Western Canada. **Here is an opportunity for the Dominion to secure the rapid and successful development of three extensive iron ranges of proven value in Northern Ontario, containing apparently hundreds of millions of tons of iron ore, conveniently situated to ship to the Ontario and American blast furnaces, and aid materially the agricultural, lumbering, and manufacturing interests of Central Canada, and at the same time** secure the rapid and successful development of the important iron mines in Nova Scotia, New Brunswick, and British Columbia.

MAGNIFICENT RESULTS

The former bounties allowed the maximum payment of $2.10 per ton on pig iron manufactured from Canadian ore, and $1.10 when manufactured from imported ore. The Canadian iron mines were not far enough advanced, and their production was so small that only about 5 per cent. of the iron and steel bounties were received by the Canadian mine owners. At the present time about 95 per cent. of the iron ore used in the blast furnaces of Canada is imported free of duty. The Canadian mine owners are now entitled to most favorable consideration, when they are called upon to make such large expenditures before the ore can be sold. For ten years a bounty of 50 cents per ton should be paid to the mine owners for each ton of iron ore mined and smelted, regardless of whether such ore is concentrated or roasted before the same is smelted, but limited to the extent of $1,000,000 during each year, and the same to be paid pro rata during such year as the output may exceed 2,000,000 tons. With such assistance it is possible that at the end of ten years the Canadian Iron Mines would be producing at least 12,000,000 tons of iron ore annually. Even if only 2,000,000 tons were mined each year, there would be about 6,000 men engaged in mining, concentrating, and transporting the ore, and another 6,000 men engaged in exploring and developing new deposits, and supplying the needs of these men, which would mean an increased population in Canada of about 60,000 people who would pay into the Dominion treasury at least $600,000 in customs duties, and there would be about $6,000,000 spent in developing water powers, erecting concentrating and roasting plants, and branch lines of railway, and about $6,000,000 paid out annually in wages to the men directly and indirectly engaged in the mining of iron ore. The 18 blast furnaces now produce about 1,000,000 tons of pig iron, and the present requirements are about 2,000,000 tons for a population of 7,500,000; but in ten years Canada should have a population of about 15,000,000; and with a protective duty of 21 per cent. on iron and steel product, the produce of the blast furnaces might exceed 6,000,000 tons of pig iron, which would require 12,000,000 tons of iron ore, which if secured from Canadian mines, would mean about 72,000 men directly and indirectly depending on iron mining for a livelihood, paying $3,600,000 in customs duties, and receiving $36,000,000 yearly in wages. The blast furnaces and steel plants would produce about $241,000,000 worth of iron and steel product and pay about $51,800,000 to their 72,000 employes directly engaged in Canada in supplying their wants, which together would represent an increased population of about 750,000 people, paying each year about $7,500,000 in customs duties into the treasury of the Dominion.

CONCLUSION

In Canada we have almost unlimited quantities of iron ore, coal, limestone, and other raw material required for the production of pig iron and steel. Canada possesses every natural facility for establishing steel plants and shipbuilding industries on any desired scale, and has also the only important coal deposits on tidewater in the whole hemisphere, in Nova Scotia and British Columbia.

The development of iron mines and the manufacture of iron and steel is a fundamental industry and is universally admitted should be among the earliest industries to be developed in any country that has the necessary raw material. Both sides of Parliament have in the past supported the granting of bounties in aid of the industry.

The United States Steel Company have their plants located at

Gary and Duluth, to which points they can ship cheaply by water or rail to most of the important centres of Central and Western Canada. Realizing the advantage possessed by the United States Steel Company in owning their own iron mines, railways, steamship lines and plants, backed by unlimited capital and years of successful experience, substantial assistance to develop our iron mines and steel industries are imperative. The average protection on dutiable articles imported into Canada is about 26 per cent. A bounty of 50 cents per ton should be allowed on Canadian ore, and a duty of 20 per cent. ad valorem imposed on all iron and steel products, and thereby build up an iron and steel industry worthy of Canada, and of her promising future; and lay the foundation for shipbuilding yards that eventually will equal anything in the world. How can Canada spend her surplus millions better than by stimulating the development of her iron mines, scattered across Canada from Atlantic to Pacific, which will eventually supply her own furnaces and those of other lands; and furnish remunerative employment to thousands of her citizens who will pay millions of dollars annually into the treasury of the Dominion, instead of sending annually out of the country millions of dollars for iron ore, and remain dependent on Newfoundland, the United States, and China, for one of the most important raw materials used by our manufacturing industries, instead of being independent of all foreign nations, both in the time of peace, and war?